



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,384	01/09/2004	Hisao Ikeda	740756-2698	6104
22204	7590	07/21/2005	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			MACCHIAROLO, PETER J	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b> 10/753,384	<b>Applicant(s)</b> IKEDA, HISAO	
	<b>Examiner</b> Peter J. Macchiarolo	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-11, 14 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-11, 14 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4-13-05</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The reply filed on 07/05/2005 consists of request for reconsideration related to the prior rejection of claims in the pervious Final Office Action. Applicant's request for reconsideration is persuasive and, therefore, the finality of that action is withdrawn. However, pending claims 9-11, 14, and 17-19 are not allowable as explained below.

***Information Disclosure Statement***

2. The information disclosure statement filed 04/13/05 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

***Election/Restriction***

3. Applicant's election with traverse of a manufacturing method in the reply filed on 07/05/2005 is acknowledged. The arguments have been considered and are persuasive. Accordingly, claim 19 is rejoined with the remaining claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**4. Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by previously cited Ogawa (JP 2000-068068; “Ogawa”).**

5. Regarding claims 9 and 10, Ogawa shows in figure 2 and in paragraphs [0019]-[0022], a manufacturing method of a light emitting device comprising an anode (4), a cathode (6), a light emitting layer (5b) disposed between said anode and said cathode, and a hole injection layer (5a) disposed between said anode and said cathode, the method comprising: forming said hole injection layer that comprises copper phthalocyanine, and exposing said hole injection layer to oxygen gas (the oxygen component in NO<sub>2</sub>) after forming said hole injection layer.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**6. Claims 11, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa.**

Art Unit: 2879

7. Regarding claim 11, Ogawa is silent to an electron acceptable compound capable of oxidizing phthalocyanine is doped in the hole injection layer.

8. However, Ogawa does teach that an electron acceptable gas,  $\text{NO}_2$ , has strong oxidizing properties and this gas is directed over the phthalocyanine to increase hole injection efficiency. One would be motivated to dope the phthalocyanine with an electron acceptable compound capable of oxidizing the hole injection layer in addition to exposing the hole injection layer to the oxidizing gas atmosphere to increase the layer's sensitivity to oxygen and ultimately increasing the oxidization of the layer, thereby increasing overall hole injection efficiency.

9. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the light emitting device of Ogawa by doping the hole injection layer with an electron acceptable compound capable of oxidizing phthalocyanine to increase the conductivity and hole injection efficiency of the phthalocyanine.

10. Regarding claim 14, Ogawa is silent to the electron acceptable compound being TCNQ-F4 (tetracyanoquinodimethane) or  $\text{V}_2\text{O}_5$ .

11. However, it is known that both of these materials will oxidize phthalocyanine, and therefore, it would have been obvious to one having ordinary skill in the art that the time the invention was made to use TCNQ-F4 or  $\text{V}_2\text{O}_5$ , since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Further, one

Art Unit: 2879

would be motivated to this configuration for a variety of reasons, including material availability and manufacturing processes with sensitive requirements.

12. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture Ogawa's light emitting device with exposing the hole injection layer to dope phthalocyanine with TCNQ-F4 or  $V_2O_5$ .

13. Regarding claims 17 and 18, the limitations therein have been discussed above at rejected claims 9, 10, and 11.

14. **Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Tanabe et al (USPN 6132280; "Tanabe").**

15. Regarding claim 19, Ogawa discloses the limitations therein, except that the hole injection layer is formed in a first chamber of a multi-chamber system and exposed to oxygen gas in a second chamber.

16. However, Tanabe teaches that manufacturing an EL display with each manufacturing step carried out in a separate chamber allows for a high yet stable system and manufacturing process at a low cost.

17. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the hole injection layer of Ogawa in a first chamber and exposing oxygen in second chamber.

***Response to Arguments***

18. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

19. The Examiner notes the term in claim 9, "oxygen" is not given any special definition in the instant specification. Consequently, it is given its broadest reasonable interpretation not inconstant with the specification. The Examiner interprets "oxygen" as any gas containing oxygen. Even though the Ogawa reference is in Japanese, Applicant has correctly interpreted that the CuPc layer of Ogawa is treated with an oxygen containing gas, NO<sub>2</sub> (page 7 of remarks). Since the claim has an open ended transitional word (i.e. "comprising") and Ogawa's gas contains oxygen, Ogawa's layer of CuPc is exposed to oxygen gas.

***Conclusion***

20. Previously cited USPN 6486601 to Sakai published 11/26/2002 is evidence that doping the hole injection layer with TCNQ-F4 is known in the art and would be obvious.

21. Applicant's amendment filed 01/18/2005 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

22. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2879


will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375.

The examiner can normally be reached on 8:30 - 5:00, M-F.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'PJM', with the letters 'PJM' printed in a small circle to the left of the signature.A handwritten signature in black ink, appearing to be 'Joseph Williams', written in a cursive style.  
**JOSEPH WILLIAMS**  
**PRIMARY EXAMINER**